

# LICENCE

Licence No./Licence n° 2870

Issue Date/Date de délivrance February 26, 2009

In accordance with The Environment Act (C.C.S.M. c. E125)/  
Conformément à la Loi sur l'environnement (C.P.L.M. c. E125)

Pursuant to Sections 11(1) /Conformément au Paragraphes 11(1)

THIS LICENCE IS ISSUED TO:/CET LICENCE EST DONNÉ À:

The Town of Neepawa and Springhill Farms Inc.; "the Licencees"

to construct and operate major proposed physical and operational alterations to the Town of Neepawa's existing industrial wastewater treatment facility (I-WWTF),

and  
to construct and operate 2 biosolids storage facilities to complement the treatment of wastewater generated at the Springhill Farms pork processing facility, and the associated existing truck wash facility, whereby all construction activities will be undertaken on land jointly owned by the Town of Neepawa and Springhill Farms Inc., and described as 5.6 acres within a portion of Lot 1, Plan 23208 BLTO exc. Plan 2308 NLTO, specifically in the south-west quarter section of 35-14-15 WPM, as well as those lands described as the 156 meters perp of Sly 512.35 meters perp of all that portion of SW1/4 35-14-15 WPM lying to the east of the line drawn West of, parallel with, and perp distant 155 meters from the most Ely of the Western limits of Lot 1 Plan 23208 BLTO exc. Plan 23208 NLTO, in accordance with:

- (1) the Proposal submitted to the Department on July 31, 2008, together with a comprehensive Environmental Impact Statement., prepared by Earth Tech Consultants; and
- (2) Resolution No. 27/12 passed by the Town of Neepawa on January 16, 2009, and submitted to the Director on January 21, 2009, as a Notice of Alteration, requesting that the Licence be made out in the name of both the Town of Neepawa and Springhill Farms Inc.

## DEFINITIONS

In this Licence,

"**accredited laboratory**" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

“**affected area**” means a geographical area, excluding the property of the Development;

“**approved**” means approved by the Director in writing;

“**as constructed**” means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

“**biosolids**” means accumulated organic solids resulting from wastewater treatment processes that have received adequate treatment to permit the material to be recycled;

“**COD**” means chemical oxygen demand;

“**CBOD<sub>5</sub>**” means 5-day carbonaceous biochemical oxygen demand;

“**composite sample of the effluent**” means a quantity of undiluted effluent composed of a minimum of 24 sequential series of discrete equal volumes of effluent collected at a rate proportionate to the flow rate of the effluent over a period of 24 consecutive hours;

“**composite sample of the influent**” means a quantity of undiluted influent composed of a minimum of 24 sequential series of discrete equal volumes of influent collected at a rate proportionate to the flow rate of the influent over a period of 24 consecutive hours;

“**DAF**” means dissolved air flotation;

“**day**” or “**daily**” means any period of 24 consecutive hours;

“**Director**” means an employee of the department appointed as such by the Minister;

“**effluent**” means wastewater released into the environment;

“**Environmental Management Systems (EMS)**” means the part of the overall management system that includes organization, structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy;

“**Escherichia coli (E. coli)**” means that species of bacteria in the fecal coliform group that is found in large numbers in the gastrointestinal tract and feces of warm blooded animals and man, the presence of which is considered indicative of fresh fecal contamination, and which is used as an indicator organism for the presence of less easily detected pathogenic bacteria;

“**fecal coliform**” means aerobic and facultative, Gram-negative, nonspore-forming, rod-shaped bacteria capable of growth at 44.5° C, and associated with fecal matter of warm blooded animals;

**“first order waterway”** means a drain or watercourse serving a watershed with a drainage area of up to one square mile;

**“final discharge point”** means the effluent monitoring location post the UV disinfection facility of the I-WWTF, or the actual end-of-pipe outfall location for the effluent at or near the banks of the Whitemud River, unless otherwise re-designated in writing by the Director;

**“flooding”** mean the flowing of water onto lands, other than waterways, due to the overtopping of a waterway or waterways;

**“grab sample”** means a quantity of undiluted effluent collected at any given time;

**“hydraulic conductivity”** means the quantity of water that will flow through a unit cross-sectional area of a porous material per unit of time under a hydraulic gradient of 1.0;

**“influent”** means all the untreated hog processing wastewater and sanitary sewage from the Springhill Farms hog processing facility and the associated treatment facility, being directed into the wet well prior to the fine screening stage;

**“I-WWTF”** means the proposed industrial wastewater treatment facility, or any subsequent approved modification or alteration thereto;

**“mg/L”** means milligrams per litre;

**“NIST”** means the National Institute of Standards and Technology;

**“kg/d”** means kilograms per day;

**“odour nuisance”** means a continuous or repeated odour, smell or aroma, in an affected area, which is offensive, obnoxious, troublesome, annoying, unpleasant, or disagreeable to a person:

- (a) residing in an affected area;
- (b) working in an affected area; or
- (c) present at a location in an affected area which is normally open to members of the public; if the odour, smell or aroma
- (d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90-day period, from 5 different persons falling within clauses (a), (b) or (c), who do not live in the same household; or
- (e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses (a), (b) or (c) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90-day period, from 5 different persons who do not live in the same household;

**"Operator"** means a person certified to operate the I-WWTF, and employed by the Licencees to manage the functional day-to-day operation of the I-WWTF within the constraints of this Licence;

**"pollutant"** means a pollutant as defined in The Environment Act;

**"pork processing facility"** means the Springhill Farms pork slaughtering and processing plant, and all the supporting facilities located on that same property;

**"process wastewater"** means all wastewater from the pork processing facility, including sanitary sewage and wastewater from the associated truck wash facility;

**"second order waterway"** means a drain or watercourse servicing a watershed with a drainage area greater than one square mile or having a tributary or tributaries which are first order waterways;

**"MPN index"** means the most probable number of coliform organisms in a given volume of wastewater or effluent which, in accordance with statistical theory, would yield the observed test result with the greatest frequency;

**"sludge"** means accumulated solid material containing large amounts of entrained water which has separated from wastewater during processing;

**"30-day rolling average"** means the arithmetic average of any daily reported data plus the preceding 29 consecutive days of reported data;

**"undiluted"** means not having water added for the purposes of meeting the limits of this Licence;

**"WAS"** means waste activated sludge;

**"wastewater"** means any liquid containing a pollutant;

**"water table"** means the upper surface of the zone of saturation of a water bearing geological unit";  
and

**"week"** or **"weekly"** means any period of 7 consecutive days.

### GENERAL TERMS AND CONDITIONS

This Section of the Licence contains requirements intended to provide guidance to the Licencees in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. In addition to any of the limits, terms and conditions specified in this Licence, the Licencees shall, upon the request of the Director:

- (a) sample, monitor, analyze and/or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for such duration and at such frequencies as may be specified;
  - (b) determine the environmental impact associated with the release of any pollutant(s) from the I-WWTF; and /or
  - (c) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rates, concentrations and mass loading rates, and such other information as may from time to time be requested.
2. The Licencees shall, unless otherwise specified in this Licence:
    - (a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in the most current edition of "Standard Methods for the Examination of Water and Wastewater" published jointly by the American Public Health Association, the American Waterworks Association and the Water Pollution Control Federation, or in accordance with an equivalent analytical methodology approved by the Director; and
    - (b) have all analytical determinations undertaken in an accredited laboratory.
  3. The Licencees shall report all the information requested through the provisions of this Licence in a manner and form acceptable to the Director.
  4. The Licencees shall:
    - (a) by December 31, 2009, develop and submit to the Director, for approval, an Environmental Management System (EMS) respecting the operation of the I-WWTF, and;
    - (b) maintain it's implementation on an ongoing basis in a manner satisfactory to the Director.
  5. The Licencees shall:
    - (a) within 3 months of having commissioned the upgraded I-WWTF into operation, submit to the Director for approval, an industrial *Emergency Response Plan (ERP)* consistent with the *Industrial Emergency Response Planning Guide (MIAC, September, 1996)*"; and
    - (b) continually maintain the approved ERP in a current and updated status.

## SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

### Respecting the Construction of the Expanded and Upgraded I-WWTF

6. The Licencees shall:
  - (a) clearly mark any existing groundwater monitoring wells located on the property of the IWWTF which have the potential to be disturbed by any construction activity involving the expansion and modification of the existing I-WWTF; and

(b) decommission any existing groundwater monitoring well(s) which are planned to be terminated or relocated (in the course of the construction activity) in a manner consistent with any applicable guidelines or requirements administered by the Department of Water Stewardship.

7. The Licencees shall revegetate any surface areas on the property of the Development which are affected by construction and by re-contouring, in order to minimize or prevent the erosion of soil off the property.
8. The Licencees shall, with respect to the proposed alterations to the existing I-WWTF, and any future approved modifications thereto, submit to the Director two sets of constructed drawings, stamped "As Constructed", for each construction contract, within three months following the completion of the proposed alterations or modifications to the I-WWTF.

#### **Respecting Surface Runoff**

9. The Licencees shall with respect to on-site earthen construction works, construct and maintain silt fences in the drainage routes transporting surface runoff off the property of the Development until vegetation has been re-established on the disturbed area.

#### **Respecting the Influent to the I-WWTF**

10. The Licencees shall not accept wastewater, liquid sludge or manure into the I-WWTF from any source other than the Springhill Farms' pork processing facility and truck wash facility, except for seed as may be required by the I-WWTF upon the start-up of the I-WWTF or to recover from a treatment process upset.

#### **Respecting the Operational Integrity of the I-WWTF**

11. The Licencees shall:
  - (a) stage the ramp-up of the operation of the I-WWTF in accordance with the written instructions of the Operator of the I-WWTF;
  - (b) limit the wastewater being directed into the I-WWTF to only that wastewater which is generated at the Springhill Farms pork processing plant and truck wash facility while operating at a pork processing rate not exceeding 27,550 hogs per week;
  - (c) annually monitor and manage the quality and quantity of the raw wastewater streams from the Springhill Farms' hog processing facility and truck wash facility relative to the design limitations of the I-WWTF, and consistent with maintaining ongoing compliance with the limits, terms and conditions set out in this Licence;
12. The Operator of the I-WWTF shall:
  - (a) provide written instructions to Springhill Farms, when necessary, with respect to managing the quality and quantity of any wastewater streams being directed from the hog processing and the truck wash facilities to the I-WWTF, clearly indicating the necessity for the instruction(s) and any critical timing associated with executing the instruction(s); and

- (b) copy the Director on any written authorizations or instruction provided to Springhill Farms concerning the commissioning of the altered I-WTF and the ongoing management of the quality and quantity of any influent wastewater streams being directed into the wet well at the front of the I-WWTF.

**Respecting Effluent Releases from the Development**

- 13. The Licencees shall release effluent from the Development only through the local discharge point of the Development leading to the Whitemud River.
- 14. The Licencees shall not release any effluent from the Development if the quality of the effluent is such that:
  - (a) the organic content in the effluent, as indicated by the 5-day carbonaceous biochemical oxygen demand, is in excess of 25 mg/L, as determined from any composite sample of the effluent;
  - (b) the total suspended solids content in the effluent, is in excess of 25 mg/L, as determined from any composite sample of the effluent;
  - (c) the fecal coliform content in the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the monthly geometric mean of 1 grab sample collected at equal time intervals on each of a maximum of 3 consecutive days per week; or
  - (d) the E. coli content in the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the monthly geometric mean of 1 grab sample collected at equal time intervals on each of a maximum of 3 consecutive days per week.
  - (e) the concentration of total nitrogen in the effluent on any day is in excess of 15.0 milligrams per litre, as determined by the 90-day rolling average; or
  - (f) the concentration of total phosphorus in the effluent on any day is in excess of 1.0 milligrams per litre, as determined by the 90-day rolling average.
- 15. The Licencees shall not, on any day, release a quality of effluent from the Development which:
  - (a) causes, or contributes to, the mixing zone for the effluent in the Whitemud River being acutely lethal to aquatic life passing through the mixing zone; or
  - (b) which can be demonstrated to be acutely lethal to fish within the mixing zone for the effluent in the Whitemud River using a 96-hour static acute lethality test which results in mortality to more than 50 percent of the test fish exposed to 100% per cent strength effluent, with the test carried out in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for (a) install the proposed double 80 mil HDPE double geomembrane and conductive liners, the gas relief system and the seepage monitoring sumps as proposed;
  - (b) arrange to have all liner welds supervised and tested by a qualified third party inspector experienced in supervising and testing HDPE liner welds ; and
  - (c) submit to the Director a report, prepared and signed by the inspector, detailing the integrity of all the Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition - December 2000", or any future amendment thereof.

### **Respecting Groundwater Protection**

16. The Licencees shall, with respect to the construction of each of the two proposed double lined sludge/biosolids storage cells (to be converted from Neepawa's existing lagoon Cell #3);  
liner weld tests conducted under his supervision.
17. The Licencees shall, within 4 months of the receipt of this Licence:
  - (a) develop and submit to the Director, for approval, a Groundwater Monitoring Program to encompass all groundwater zones that could potentially be impacted at the site of the Development by losses of untreated or partially treated wastewater, or liquid leakage from the double lined biosolids storage cells, or any spilled liquid chemicals or petroleum fuel; and
  - (b) submit an annual report to the Director each year on the findings of the approved Groundwater Monitoring Program.
18. The Licencees shall, upon learning that the approved Groundwater Monitoring Program has identified evidence of probable or certain groundwater contamination;
  - (a) file an action plan with the Director, as soon as possible, to identify and isolate the source(s) of the groundwater contamination; and
  - (b) implement remediation measures, to the satisfaction of the Director, and to the extent necessary to restore the impacted groundwater.
19. The Licencees shall, upon the suspicion or detection of any leaking or ruptured wastewater collection pipe or forcemain, immediately undertake an investigation, and upon confirmation of a leak or rupture, terminate or otherwise re-route all inputs to the pipe or forcemain until the necessary repair has been completed.
20. Whereupon evidence indicates that:
  - (a) seepage of pollutants is occurring through the primary liner of either of the two sludge/biosolids holding cells (based on the rates of recovery from their respective leak detection manholes) at a rate greater than that which would be expected to seep through the entire submerged surface area of the primary liner of the respective basin (each expected to have an overall hydraulic conductivity not exceeding  $1 \times 10^{-9}$  centimetres per second at full operating depth); and
  - (b) seepage of pollutants is also occurring through the secondary liner of the anaerobic basin (based on findings from the groundwater monitoring program);the Licencees shall, as soon as possible, arrange to have professionals in that field assess environmental significance of the circumstance as well as determine options for the remediation of the circumstance, for submission to, and for the consideration of, the Director.

### **Respecting Air Emissions**

21. The Licencees shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may specify to eliminate or mitigate an odour nuisance.



22. The Licencees shall, within two years of the date of issuance of this Licence, prepare and submit to the Director:
  - (a) an updated greenhouse gas inventory respecting the Development, by addressing carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride emissions; and
  - (b) a greenhouse gas management plan for the Development, including reduction strategies and targets.

#### **Respecting Solid Wastes**

23. The Licencees shall not undertake any on-site burning of solid waste.
24. The Licencees shall, wherever possible, maximize the collection and recycling of any recyclable wastes generated through the operating activities.
25. The Licencees shall not deposit solid waste into the environment except into a waste disposal ground operating under the authority of an Environment Act Licence, or a permit issued pursuant to Manitoba Regulation 150/91 or any future amendments thereof, where the operator of that facility has agreed to accept the solid waste.

#### **Respecting the Management of Sludges and Biosolids**

26. The Licencees shall ensure that all sludges deposited into the proposed double lined biosolids cells are aerated during the fill period and kept isolated in their respective storage cell for one year before being withdrawn for application to agricultural land.
27. The Licencees shall carry out the application of biosolids to land in compliance with the *Nutrient Management Regulation*.
28. The Licencees shall, with respect to each proposed annual land application campaign for those biosolids that have been kept isolated for one year in their respective biosolids cell, annually submit to the Director, for review, a proposed biosolids land application plan supported with an approved soil monitoring program for addressing potential nutrient and/or heavy metals build-up in the soil, while also adhering to prescribed distance requirements.
29. The Licencees shall ensure that biosolids are transported in containers in such a manner to prevent the loss of biosolids or entrained fluids to the satisfaction of an Environment Officer.
30. The Licencees shall ensure that all biosolids applied to agricultural land are injected into the soil, and that the depth at which the biosolids are introduced into the soil, is a minimum of 15 centimeters below the soil surface or that soil which is mounded to a depth of 15 centimeters above the level at which the biosolids were introduced into the soil in such a manner as to cover all of the biosolids.
31. The Licencees shall ensure that:
  - (a) the biosolids remain in the furrow opening; and

- (b) the surface expression of the injected biosolids is acceptable to an Environment Officer.
32. The Licencees shall ensure that the application rate of biosolids onto the land does not exceed 10 tonnes per hectare, on a dry weight basis, over any four year period and that the amount of plant-available nitrogen added to the land from all sources does not exceed 100 kilograms per hectare during any year in which biosolids were applied.
33. The Licencees shall not permit the application of biosolids:
- (a) to frozen soil;
  - (b) less than 300 metres from any occupied residence (other than the residence occupied by the owner of the land on which the biosolids are to be applied);
  - (c) less than 1 kilometre from a residential area;
  - (d) less than 15 metres from a first order waterway;
  - (e) less than 30 metres from a second, or higher order waterway;
  - (f) less than 30 metres from a Lake or reservoir;
  - (g) less than 50 metres from any groundwater well;
  - (h) to any land classified as Zone N4 under the Nutrient Management Regulation; or
  - (i) on land that is subject to flooding.
34. The Licencees shall ensure that biosolids are not applied on land:
- (a) with a depth of clay or clay till less than 15 metres between the soil surface and the water table;
  - (b) within 100 metres of an identifiable boundary of an aquifer which is exposed to the ground surface;
  - (c) where, prior to the application of biosolids, the soil pH is less than 6.0;
  - (d) where the surface slope of the land is greater than 5 percent;
  - (e) where, prior to the application of biosolids, the level of nitrate-nitrogen exceeds 100 kilograms per hectare in the upper 60 centimetres of the soil; or
  - (f) where, prior to the application of biosolids, the concentration of sodium bicarbonate extractable phosphorous, as P, exceeds 60 micrograms per gram in the upper 15 centimeters of the soil.
35. The Licencees shall ensure that cattle are not allowed to pasture on land on which biosolids have been applied, for a period of three years from the date of application of the biosolids.
36. The Licencees shall ensure that on all agricultural land onto which biosolids have been applied, one of the following crops is planted at the commencement of the next growing season following such application and only these crops are grown for a period of three years from the date of application of biosolids:
- (a) a cereal crop;
  - (b) a forage crop;
  - (c) an oil seed crop;
  - (d) field peas; or
  - (e) lentils.

37. The Licencees shall ensure that the cumulative weight per hectare of each heavy metal in the soil, as calculated by adding the amount of each heavy metal in the biosolids applied to the background level of the same metal, does not exceed the following levels: \*

<u>Metal</u>	<u>Kilogram per Hectare</u>
Cadmium	2.52
Copper	113.4
Nickel	90
Lead	126
Zinc	360
Mercury (inorganic)	11.9
Chromium (total)	115.2
Chromium ( VI )	0.5
Arsenic	21.6

\* Calculated values shall be based on a soil bulk density of 1200 kilograms per cubic metre and a soil depth of 15 centimetres. Analysis for heavy metals must be carried out in accordance with Schedule "B" of this Licence.

38. The Licencees shall provide to the Director and the respective municipal authority, on or before the 15th day of March of each year, the legal descriptions for all farmland on which biosolids are to be applied in the current calendar year.
39. The Licencees shall ensure that on or before the 15th day of March of each year, a public notice is printed in the local newspaper to advise local residents of the intended biosolids application sites for the current calendar year.
40. The Licencees shall develop and carry out a biosolids sampling and analysis program, acceptable to the Director, to determine the volume and solids content of the biosolids removed on a daily basis and the volume and solids content of biosolids applied to each field. The Licencees shall make this information available to an Environment Officer on request.
41. The Licencees shall develop and carry out a field monitoring program on the biosolids disposal operation, in a manner which is acceptable to the Director, to determine:
- sodium bicarbonate extractable phosphorous, as P, in the upper 15 centimetres of the soil;
  - nitrate nitrogen and total nitrogen in the upper 60 centimetres of the soil;
  - pH of the soil;
  - surface slope of the land;
  - presence of clay and clay till to a depth of 1.5 metres;
  - number of hectares in each field that can receive biosolids in accordance with the Licence; and;
  - number of hectares on which biosolids were applied on a daily basis.

The Licencees shall make this information available to an Environment Officer on request.

42. The Licencees shall conduct a monitoring and analysis program which is acceptable to the Director, and in accordance with Schedules "A" and "B" of this Licence to determine:
- (a) the composition of the biosolids;
  - (b) the background levels of selected soil parameters for each parcel of land; and
  - (c) the crops grown on land on which biosolids have been applied during the previous 3-year period.
43. The Licencees shall on or before the 15th day of March of each year, submit to the Director a report which will include the following:
- (a) details of the biosolids injection program carried out during the previous 12-month period including:
    - (i) a description of each parcel of land on which biosolids were distributed;
    - (ii) the background levels of soil parameters as listed in Schedule "A" of this Licence, for each parcel of land;
    - (iii) the dry weight of biosolids applied per hectare;
    - (iv) the weight of each heavy metal, in milligrams per kilogram of soil, added to each parcel of land for the metals listed in Schedule "A" of this Licence; and
    - (v) the cumulative weight, in milligrams per kilogram of soil, of each heavy metal for each parcel of land as calculated by adding the amount of each heavy metal applied to the background level of the same metal;
  - (b) the amount of nitrogen, phosphorus, and potassium which was added per hectare for each parcel of land;
  - (c) the results of analysis of the biosolids and soil required by this Licence;
  - (d) a copy of the analytical procedures used and the results of analysis of reference materials in accordance with Schedule "B" of this Licence; and
  - (e) the type of crops grown on land on which biosolids were applied during the previous 3-year period.

**Respecting the Effluent Monitoring Station**

44. The Licencees shall:
- (a) ensure that the effluent line associated with the Development has an in-line continuous flow meter which is factory calibrated and certified to measure flow rates to an accuracy within  $\pm 2$  percent; and
  - (b) continually maintain the effluent flow meter in proper working order.
45. The Licencees shall:
- (a) ensure that the effluent in-line continuous flow meter associated with the Development possesses an electronic interface device designed to activate flow proportional samplers for collecting composite samples of the effluent; and
  - (b) maintain the electronic interface devices in proper working order.

46. The Licencees shall ensure that:

- (a) the effluent line is equipped with an enclosed and heated structure for the collection of composite samples; and
- (b) the effluent monitoring station is sized to accommodate the simultaneous set-up and operation of up to two flow proportional 24-hour composite samplers, and equipped with interfaces to the effluent flow metering device whereby at least one of the interfaces is compatible with the departmentally owned ISCO sampler.

**Respecting Monitoring, Record Keeping and Reporting of Effluent Releases**

47. The Licencees shall:


- (a) continuously measure and record the daily and total monthly volume (cubic metres) of effluent released from the final discharge point of the Development with an accuracy within  $\pm 2$  percent;
- (b) once every week, on a full production day, collect a composite sample of the effluent at the final discharge point of the Development, and analyze it for:
  - (i) pH;
  - (ii) suspended solids (mg/L);
  - (iii) 5-day carbonaceous biochemical oxygen demand (mg/L); and
  - (iv) ammonia nitrogen (expressed as mg/L of N); and
- (c) once each day collect a composite sample of the effluent from the Development and analyze it for:
  - (i) total nitrogen (as N); and
  - (ii) total phosphorus (as P);
- (d) once each day at equal time intervals for a minimum of three (3) consecutive days per week, collect a grab sample of the effluent from the final discharge point of the Development and analyze it for:
  - (i) fecal coliform (expressed as MPN per 100 millilitres of sample); and
  - (ii) E. coli (expressed as MPN per 100 millilitres of sample); anddetermine and record the monthly geometric mean for each of the fecal coliform and E. coli counts based on all the data collected during each month for each coliform type;
- (e) determine and record the loadings of:
  - (i) ammonia nitrogen (as kg/d of N);
  - (ii) total nitrogen (as kg/d of N); and
  - (iii) total phosphorus (as kg/d of P); andreleased to the Whitemud River on each sampling date; and
- (f) once every six months, collect a grab sample of the effluent at the final discharge point and have the sample analyzed by means of appropriate analytical methodologies to identify and quantify the presence of:
  - (i) Cryptosporidium
  - (ii) Giardia
  - (iii) heavy metals
  - (iv) organochlorines;

- (v) active pharmaceutical ingredients (particularly suspected endocrine disrupting compounds) which may be associated with pork processing operations; and
- (vi) such other parameter(s) as may be requested by the Director;  
until or unless otherwise specified by the Director.

48. The Licencees shall, once every 3 months, until otherwise specified by the Director, collect an undiluted bioassay sample of the effluent at the final discharge point, and have the sample at 100 percent concentration for acute lethality in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition - December 2000", or any future amendment thereof, and submit a copy of each such acute lethality determination to the Director with the next scheduled monthly effluent quality report.
49. The Licencees shall:
- (a) monitor the leak detection manholes at each of the two biosolids basins at least once a week for evidence of any leakage of wastewater through the primary liner of the anaerobic basin; and
  - (b) record the amount of fluid (in litres), if any, per week out of the leak detection manhole.
50. The Licencees shall submit monthly reports of applicable analytical values, and information determined and recorded pursuant to Clauses 47, 48 and 49 of this Licence, to the Director, in writing and in an electronic format acceptable to the Director, no later than 30 days after the end of the month during which the information was collected or compiled.

#### REVIEW OR REVOCATION

- A. This Licence replaces Environment Act Licence No. 1103VC which is hereby rescinded.
- B. If, in the opinion of the Director, the Licencees have failed or are failing to comply with any of the specifications, limits, terms or conditions set out herein, the Director may, temporarily or permanently, revoke this Licence.
- C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of The Environment Act.
- D. This Licence will be reviewed in 2 years for possible further updating.

  
Tracey Braun, M.Sc.  
Director  
Environment Act

File: 2755.1

**RESCINDED**

**SCHEDULE "A" TO ENVIRONMENT ACT LICENCE NO. 2870**

**Biosolids**

1. A representative sample of biosolids shall be collected from the biosolids cell of the I-1000 WTF from which biosolids are intended to be removed. A representative sample of biosolids shall be a composite of sludge samples taken from a minimum of 5 locations distributed over the surface of the cell.
2. The sample of biosolids shall be analyzed for the following parameters:
  - a. conductivity
  - b. pH
  - c. total solids
  - d. volatile solids
  - e. nitrate nitrogen
  - f. total Kjeldahl nitrogen
  - g. ammonia nitrogen
  - h. organic nitrogen
  - i. total phosphorus
  - j. lead
  - k. mercury
  - l. nickel
  - m. potassium
  - n. cadmium
  - o. copper
  - p. zinc
  - q. chromium
  - r. arsenic

\* Analysis for heavy metals must be carried out in accordance with Schedule "B" of this Licence.

**Soil**

3. Composite samples from each field onto which biosolids will be applied shall be taken prior to application of biosolids. Each field of twenty-four hectares or less shall be sampled from a minimum of twelve representative sites or a minimum of one sample site per two hectares for larger fields. Each sample site shall be sampled from 0 to 15 centimetres and from 0 to 60 centimetres. The entire cores extracted for each sample shall be collected. All samples from similar depths within a field shall be bulked in one container for thorough mixing prior to analysis yielding two samples per field.
4. Soil samples from 0 centimetres to 15 centimetres shall be analyzed for the following: \*
  - a. pH
  - b. potassium
  - c. nickel
  - d. mercury
  - e. zinc
  - f. sodium bicarbonate extractable phosphorus, as P
  - g. cadmium
  - h. chromium
  - i. copper
  - j. lead
  - k. arsenic

\* Analysis for heavy metals must be carried out in accordance with Schedule "B" of this Licence.

5. Soil samples from 0 to 60 centimetres shall be analyzed for the following:
  - a. nitrate nitrogen
  - b. total nitrogen



cont'd

Crops

6.

The type of crop grown on lands on which biosolids have been applied during the previous 3-year period shall be listed along with the legal description of the land and the date of application of biosolids.

**RESCINDED**

**SCHEDULE "B" TO ENVIRONMENT ACT LICENCE NO. 2870**

The analysis for all metals shall be carried out in accordance with the following requirements:

1. Soil and sludge samples shall be prepared using non-contaminating grinding and sieving procedures such as agate or porcelain mortar and pestle along with nylon sieves. Soil samples shall be ground to at least 100 mesh size prior to digestion or sample pretreatment.
2. Analysis for heavy metals must be carried out following strong acid digestion.
3. The laboratory performing these analyses shall operate an acceptable quality assurance program including the following:
  - a) Samples of reference material shall be analyzed to monitor the accuracy of the sludge and soil analyses and each set of ten or less samples of sludge or soil shall include, a minimum of the following:
    - i) For sludge samples:
      - one NIST domestic sludge sample (SRM 2789);
    - ii) For soil samples:
      - one NIST Estuarine Sediment sample (SRM 1646a); or
      - one NIST San Joaquin Soil sample (SRM 2709); or
      - a replacement reference soil sample, acceptable to the Director, with analyte concentrations that reflect values found in the field samples; and
  - b) Field duplicates of samples shall be analyzed based on a frequency of one in each set of ten or less field samples and that the acceptance criteria for duplicate analysis should be within  $\pm 10$  percent.
4. A copy of the analytical procedures and the analytical results for the reference materials, and any other controls used in the analysis, shall be submitted with the field sample results.
5. If the analytical results of the reference materials do not meet the following criteria, the soil and/or sludge samples must be re-analyzed:

- Arsenic	$\pm 35$ percent from the reference value
- Cadmium 1 $\mu\text{g/g}$	$\pm 25$ percent from the reference value (for values above 1 $\mu\text{g/g}$ )
- Cadmium 1 $\mu\text{g/g}$	$\pm 35$ percent from the reference value (for values below 1 $\mu\text{g/g}$ )
- Chromium	$\pm 25$ percent from the reference value
- Copper	$\pm 25$ percent from the reference value
- Lead	$\pm 25$ percent from the reference value
- Mercury	$\pm 35$ percent from the reference value
- Nickel	$\pm 25$ percent from the reference value
- Zinc	$\pm 25$ percent from the reference value